

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Review of the Commission’s Rules Governing the 896-901/935-940 MHz Band)	WT Docket No. 17-200
)	
Realignment of the 896-901/935-940 MHz Band to Create a Private Enterprise Broadband Allocation)	RM-11738 (Terminated)
)	
Amendment of the Commission’s Rules to Allow for Specialized Mobile Radio Services Over 900 MHz Business/Industrial Land Transportation Frequencies)	RM-11755 (Terminated)
)	

COMMENTS OF THE SENSUS PARTNERS AND ADVISORS NETWORK

The Sensus Partners and Advisors Network (“SPAN”) submits these comments in response to the Commission’s Notice of Inquiry (“*NOI*”) in the above-referenced proceeding.¹

I. STATEMENT OF INTEREST

SPAN, formerly the Sensus FlexNet Users Group, is a network of electric, gas and water utilities that use Sensus’s FlexNet AMI system (“FlexNet”) in the narrowband PCS spectrum at 901-902/940-941 MHz. FlexNet provides utilities with wireless connectivity solutions that support advanced metering infrastructure and smart grid applications, including automatic metering, alarms and outage management, demand response, SCADA and distribution automation, voltage regulation and street lighting control. SPAN’s objective is to develop consensus among utilities and Sensus USA, Inc. (“Sensus”) by, among other things, identifying and sharing best practices on FlexNet usage and providing feedback to Sensus. Presently, 123

¹ *Review of the Commission’s Rules Governing the 896-901/935-940 MHz Band*, Notice of Inquiry, 32 FCC Rcd 6421 (2017) (“*NOI*”).

U.S. and 28 Canadian utilities are SPAN members.² In the U.S. alone, SPAN's member utilities serve over ten million customers across 36 states.³

In the *NOI*, the Commission has requested comment on possible approaches to repurposing the 896-901/935-940 MHz (900 MHz) band for broadband use. Because the 900 MHz band is adjacent to the narrowband PCS spectrum at 901-902/940-941 MHz, SPAN is concerned that broadband facilities in the 900 MHz band will cause harmful adjacent channel interference to FlexNet users. For this reason, SPAN, along with many others, opposed the above-captioned petition for rulemaking (RM-11738) filed by the Enterprise Wireless Alliance and pdvWireless, Inc. (the "pdvWireless Petition"), on which the Commission seeks additional comment in the *NOI*.⁴ SPAN is filing these comments to reemphasize its opposition to the pdvWireless Petition and any other 900 MHz repurposing proposal that exposes NPCS operations to adjacent channel interference. SPAN also asks the Commission to carefully consider the interference risk any repurposing of the 900 MHz band may create for critical infrastructure industry ("CII") operations.

² SPAN's current membership list is attached as Exhibit 1.

³ In addition to SPAN's membership, there are over 1000 additional U.S. utilities that use FlexNet. Most of these are small water utilities, many in rural areas.

⁴ *NOI*, 32 FCC Rcd at 6425-26 ¶¶ 12-14, 6428 ¶ 18. *See also* Reply Comments of the Sensus FlexNet User Group, RM-11738 (filed Jan. 27, 2015) ("SPUG Reply Comments"); Comments of the Sensus Partners and Advisors Network, RM-11738 (filed June 29, 2015) ("SPAN Comments"). The SPUG Reply Comments and the SPAN Comments are incorporated herein by reference. As a matter of procedure, the Commission has denied the pdvWireless Petition "in light of [its] decision to start a comprehensive examination of the 900 MHz band" in the *NOI*. *NOI*, 32 FCC Rcd at 6428 ¶ 18 n.55.

II. DISCUSSION

A. The Commission Should Not Conduct a Rulemaking on Any 900 MHz Proposal That Poses a Risk of Adjacent Channel Interference to NPCS Users.

In the *NOI*, the Commission requests comment on three specific approaches for repurposing the 900 MHz band: (1) reconfiguring the band to provide for a 3 x 3 MHz paired broadband segment, with the remainder (or some portion thereof) left for narrowband operations;⁵ (2) fully reconfiguring the entire band into a 5 x 5 MHz broadband channel;⁶ and (3) leaving the band as is but allowing 900 MHz licensees greater operational flexibility, including, among other things, creating more bandwidth by eliminating or liberalizing the 900 MHz channel aggregation limit.⁷ Each proposal will expose NPCS licensees to an unacceptable risk of harmful adjacent channel interference.

First, the Commission's "3 x 3" proposal appears to have been drawn at least in part from the pdvWireless Petition. pdvWireless's proposal would realign the 900 MHz band into a 3 x 3 megahertz broadband segment (898-901/937-940 MHz) and a 2 x 2 megahertz narrowband segment (896-898/935-937 MHz), thus putting 900 MHz broadband operations adjacent to the NPCS spectrum at 901-902/940-941 MHz. In comments to the Commission supported by an extensive engineering study, Sensus projected that pdvWireless's proposed LTE system would produce significant out-of-band emissions that would render FlexNet equipment unusable.⁸ For example, SPAN member Portland General Electric ("PEG") has experienced approximately -162

⁵ *NOI*, 32 FCC Rcd at 6430 ¶ 27.

⁶ *Id.* at 6430 ¶ 28.

⁷ *Id.* at 6428-30 ¶¶ 19-25.

⁸ Comments of Sensus USA, Inc. in Response to Public Notice Dated May 13, 2015, RM-11738, at 7-8 (filed June 29, 2015) ("Sensus Comments"); *see also id.*, Exhibit 1.

dBm/Hz of OOB from an iDEN base station.⁹ This resulted in a loss of 70% of message traffic at affected FlexNet base stations.¹⁰ The level of OOB experienced in Portland is just a small fraction of the OOB that pdvWireless's proposed LTE system is projected to emit.¹¹ The interference caused by that system thus will be even more devastating to FlexNet users.

Reconfiguring the entire 900 MHz band into a 5 x 5 broadband channel raises the same concerns, since it would leave 900 MHz broadband operations adjacent to the NPCS spectrum. Leaving the band as is but amending the FCC's 900 MHz rules to allow greater operational flexibility and channel accumulation would likewise expose NPCS licensees to a risk of adjacent channel interference.

In addition, the Commission must consider the effect increased adjacent channel interference will have on the RF environment within which FlexNet systems must operate. When OOB from an undesired signal falls into a receiver's in-band spectrum, the noise floor increases and, conversely, the signal to noise ratio ("SNR") surrounding the receiver decreases. Once SNR falls below a certain limit, the receiver cannot detect the desired signal and service is lost. This problem is particularly acute at receive locations that operate on the edge of a base station's service area. In that scenario the receiver is especially vulnerable to increases in the noise floor, since the desired signal is weaker to begin with. To compensate for the increased noise and concomitant loss of service, FlexNet users would have to invest in additional infrastructure and thus incur higher costs. These costs are likely to be substantial, given the

⁹ SPAN Comments at 3.

¹⁰ *Id.*

¹¹ *Id.* See also Sensus Comments at 16-17.

number of FlexNet systems (and millions of FlexNet endpoints) already in operation throughout the country.¹²

To date, neither pdvWireless nor to SPAN's knowledge any other proponent of broadband operations at 900 MHz has proposed a feasible solution to adjacent channel interference. Those proponents bear the burden of demonstrating that such a solution exists. Until they do so, there is no basis for the Commission to conduct a rulemaking on any of the proposals described above.

B. Failure to Protect FlexNet Users From Adjacent Channel Interference Will Disrupt CII Operations.

SPAN's members are CII providers, distributing electric, natural gas and/or water to residences and businesses within their respective service areas. Disruption to FlexNet thus would affect CII services, in ways that bear directly on public safety. To cite just one example:

With FlexNet, Southern Company is able to better track in real time where outages have occurred without direct customer interaction . . . Southern Company estimates that it fully restored power following a large storm in Tuscaloosa, Alabama . . . much earlier than it would have without FlexNet. In addition to large-scale power outages, there are more frequent, isolated outages. Often, the customer is not able to call in the outage or otherwise does not make the call. FlexNet alerts Southern Company of each outage as it occurs and facilitates a more prompt restoration of power. Any latency in FlexNet radio messaging, caused by harmful interference, would affect the ability to use the system for emergency response purposes.¹³

¹² Sensus presented empirical evidence indicating that the noise floor equals or is lower than -168.5 dBm/Hz at the overwhelming majority of FlexNet base stations, not -160.5 dBm/Hz as postulated in the pdvWireless Petition. *See* Sensus Comments at 13-14.

¹³ Letter from Julius P. Gehman, Counsel for Sensus USA Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission, RM-11738, at 3 (filed July 29, 2015). *See also* Letter from Julius P. Gehman, Counsel for Sensus USA Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission, RM-11738, at 1-2 (filed Aug. 10, 2015) ("Sensus August 10, 2015 Letter").

FlexNet also helps to warn of overloads or imbalances in a utility's distribution network, thereby facilitating corrective action before an imbalance becomes more serious. Water utilities, for instance, use FlexNet to monitor the levels of water in water tanks; turn on or off, or regulate valves for water flow; and detect leaks.¹⁴ As with outage notification, these functions require real-time or near real-time signaling – any latency caused by harmful interference could seriously degrade their performance and put the public at risk.¹⁵

In sum, as noted by PECO Energy Company, “the reliability requirements of electric and gas utility communications, especially during times of disasters, are very high. Such utilities are considered CII entities, and as such, require reliable communications based monitoring and control for their distribution grid and associated systems. The nature of electric and gas utilities’ communications requires the highest level of protection from harmful or unacceptable interference possible so as not to affect the reliability required for operations.”¹⁶ SPAN agrees, and therefore urges the Commission to keep the special needs of CII providers in mind when considering whether to move forward with any of the proposals in the *NOI*.

III. CONCLUSION

For the reasons set forth above, SPAN urges the Commission not to conduct a rulemaking on any proposal in the *NOI* that does not sufficiently address the risk of adjacent channel interference to NPCPS users. SPAN further asks that the Commission carefully consider

¹⁴ Sensus August 10, 2015 Letter at 3.

¹⁵ Further, many SPAN members were required to obtain approval from their respective state utility commissions before purchasing and installing FlexNet systems. The state commissions specifically reviewed the costs associated with FlexNet and authorized SPAN’s members to incur those costs. If FlexNet users were required to add infrastructure to compensate for harmful adjacent channel interference, they would incur additional costs not approved by their respective state utility commissions.

¹⁶ Comments of PECO Energy Company, RM-11738, at 5 (filed Jan. 12, 2015).

how those proposals may affect CII operations and utility customers who benefit from those operations.

Respectfully submitted,

SENSUS PARTNERS AND ADVISORS NETWORK

/s/ 

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Exhibit 1

Sensus Partner and Advisors Network (SPAN) Member List

Alabama Power Company, AL
City of Munford
City of Troy, AL
City of Safford, AZ
City of Hot Springs, AR
North Little Rock Electric
City of Big Bear Lake Water Utilities
City of Redwood City, CA
Eastern Municipal Water District
Sacramento County Water Agency
City of Evans, CO
Southeast Colorado Power
Groton Utilities, CT
South Norwalk Electric & Water
City of Lakeland, FL
City of Pensacola, FL
City of Winter Park, FL
Gulf Power Company, FL
Holley-Navarre Water System, Inc
Pace Water System
St. Johns County Utilities
Talquin Electric Coop
City of Gainesville, GA
City of Statesboro, GA
City of Winder, GA
Cobb EMC, GA
Coweta County Water & Sewer Authority

Excelsior EMC
Georgia Power Company, GA
Henry County Water Authority, GA
Jackson EMC, GA
Sawnee EMC, GA
Evansville Water and Sewer Utility
LaGrange County REMC
Lewiston Orchards Irrigation District
Federated Rural Electric Assn
Southern Iowa Rural Water Association
City of Olathe
Midwest Energy, Inc.
Western Kentucky RECC
Bossier Water Department
Kennebec Water District
City of Cumberland, MD
Southern Maryland Electric Cooperative, MD
Town of Framingham
Freeborn Mower Cooperative Services
Meeker Cooperative Light & Power, MN
Minnesota Power
Nobles Cooperative Electric
Mississippi Power, MS
City of O'Fallon Water
Gardnerville Water Company
NV Energy, NV
Truckee Meadows Water Authority, NV
Entergy
Little Egg Harbour MUA
United Water
Williamstown Municipal Water Department

Albuquerque Bernalillo County Water Utility Authority
Central Valley Electric Cooperative, Inc., NM
Village of Skaneateles
Brunswick County Public Utilities
Cape Hatteras Electric Cooperative
Carteret Craven EMC
City of Hendersonville, NC
City of Newton, NC
Fayetteville Public Works Commission
Town of Cary, NC
Wayne Water Districts
City of Gahanna, OH
City of Stow
Hancock-Wood Electric Cooperative, Inc., OH
National Gas and Oil Coop
City of Collinsville, OK
Ponca City Energy
Alectra Utilities, ON
Bluewater Power Distribution Corporation
Brantford Power Inc., ON
Cambridge and North Dumfries Hydro Inc., ON
Canadian Niagara Power, ON
City of Barrie, ON
City Of Medicine Hat, AB
EnWin Utilities Ltd., ON
Greater Sudbury Hydro Inc
Grimsby Power Inc., ON
Haldimand County Hydro Inc., ON
Innisfil Hydro Distribution Systems Limited, ON
Kitchener-Wilmot Hydro Inc., ON
London Hydro Inc., ON

Newmarket Hydro Ltd., ON
Niagara Peninsula Energy Inc., ON
Niagara-on-the-Lake Hydro Inc., ON
Norfolk Power, ON
North Bay Hydro
Oakville Hydro, ON
Orillia Power Corporation
PUC Services Inc., ON
Utilities Kingston, ON
Wasaga Distribution Inc., ON
Waterloo North Hydro Inc., ON
Welland Hydro-Electric System Corp., ON
City of Gresham, OR
Eugene Electric & Water Board
Portland General Electric, OR
City of Ventnor City Water and Sewer
Dillsburg Area Authority
Easton Suburban Water Authority
Municipal Authority of the City of New Kensington, PA
North Penn Water Authority
PECO Energy, PA
SaskEnergy
SaskPower
Berkley County Water and Sanitation, SC
Chapleau Public Utilities Corp
Chesterfield County Rural Water Company, SC
Darlington County Water & Sewer Authority
Lancaster County Water & Sewer District
Mount Pleasant Waterworks
Powdersville Water District
Brentwood Water Services

Dickson Electric System, TN
Hendersonville Utility District, TN
Knoxville Utilities Board
Metropolitan Government of Nashville and Davidson County, TN
Shelbyville Power System
Atmos Energy Corporation, TX
Bryan Texas Utilities
City of Auburn
City of Cedar Park, TX
City of DeSoto
City of Euless, TX
Comanche Electric Cooperative Association
Nueces Electric Cooperative, TX
San Bernard Coop
Heber Light and Power, UT
Park City Municipal Corporation
Salt Lake City Dept of Public Utilities
Spanish Fork City, UT
Lehi City Corp
City of Danville
City of Portsmouth
Benton PUD, WA
City of Bellingham Public Works
City of Enumclaw
Woodinville Water District
Alliant Energy, WI
City of De Pere
Marshfield Utilities
Rice Lake Utilities
Superior Water, Light & Power
Village of Greendale